DSSC

Data Science & Systems Complexity

SEMINAR

9 Dec. 2021, 16.00-17.00, BlueJeans
PhD and master's students are welcome!

On Thermal Networks and Distributed Control:

Speaker: Prof. Dr. Anders Rantzer
Lund University

When fossil fuels are phased out from our cities, two remaining types of networks will dominate the energy distribution; electrical and thermal networks. For optimal efficiency the two network types need to be tightly intertwined. This seminar will focus on load modeling and control, illustrated from the perspective of thermal networks.

How do we model and predict the energy needs of buildings in order to shave the peaks in energy consumption? How do we control the pressure in thermal networks for a fair distribution to customers at times of maximum load? Hourly data collected from residential buildings in southern Sweden for more than a year give a very good basis for modeling and validation. Related to this, we will also review some recent results on optimal distributed control of network flows.

Biography: Anders Rantzer was appointed professor of Automatic Control at Lund University after a PhD from KTH Stockholm in 1991 and a postdoc at IMA, University of Minnesota. In 2004/05 he was visiting associate faculty member at Caltech and 2015/16 he was Taylor Family Distinguished Visiting Professor at University of Minnesota. Rantzer is a Fellow of IEEE, member of the Royal Swedish Academy of Engineering Sciences, Royal Physiographic Society in Lund and former chairman of the Swedish Scientific Council for Natural and Engineering Sciences. His research interests are in modeling, analysis and synthesis of control systems, with particular attention to energy networks.

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